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Title
Cathode Electrodes for Grid Scale Energy Storage
Advanced Fossil Energy Utilization
Interfacial roughness: Miscible viscous fingering in three dimensions

A modular framework for the analysis and optimization of power generation systems with CCS
Preferential flow paths in fractures
Thermodynamic analysis of interactions between Ni-based SOFC anodes and trace species in a survey of coal syngas

Effect of endosperm hardness on an ethanol process using a granular starch hydrolyzing enzyme
Effects of fluid, confining, and effective pressure on the helium permeability of a bituminous coal: Measurements and interpretation
Reducing the deactivation of Ni-metal during the catalytic partial oxidation of a surrogate diesel fuel mixture
Corrosion Effects on Alloy Reliability in Energy Generation Systems
Corrosion Behavior of Copper thin films in organic HF containing cleaning solution for semiconductor applications
Effect of Carbon on Passivation of Carbon in Hot Alkaline Solutions in Relation to Causitic Stress Corrosion Cracking
Materials Performance in High Pressure, High Temperature Drilling Environments
Hardness, Bearings, and the Rockwells

TSteam Oxidation and Chromia Evaporation in Ultra-Supercritical Steam Boilers and Turbines
Fireside Corrosion in Oxyfuel Combustion Environments

U.S. DOE/NETL Office of Research and Development Oxyfuel Combustion Research - Progress Update Task 2 Boiler Corrosion
Corrosion Resistant Metallic Materials for Ultra-Deep Well Drilling Applications
Modeling Dual and MgO Saurated EAF Slag Chemistry
Crystallographic characteristics of grain boundaries in dense yttria-stabilized zirconia
Glycine-nitrate synthesis of Sr doped La2Zr207 pyrochlore powder
An Experimental and Computational Study of Emissions from a Swirl Stabilized Burn Under EGR Conditions

Conversion of CT scans of geologic media to heterogenous computational fluid dynamics models
On the thermodynamics of some generalized second-grade fluids
Modeling confined jets with particles and swirl
In-situ impedance spectroscopy of LiMn1.5Ni0.4Cr0.1O4 cathode material

Molecular Simulations and Experimental Studies of Solubility and Diffusivity for Pure and Mixed Gases of H2, CO2, and Ar Absorbed in the Ionic Liquid 1-n-Hexyl-3-methylimidazolium Bis(Trifluoromethylsulfonyl)amide ([hmim][Tf2N]
Oxygen reduction and transportation mechanisms in solid oxide fuel cell cathodes
Radiation property measurements of oxy-fuel flames

Review of the MITAS-2009 expedition across the U.S. Beaufort shelf & Slooe of Alaska - An introduction to the first trans-shelf-slope climate study in the U.S. Beaufort Sea: Preliminary findings, and next steps

CO2 Adsorption on Supported Molecular Amidine Systems on Activated Carbon

Tracing the interaction of acid mine drainage with coal utilization byproducts in a grouted mine: Strontium isotope study of the inactive Omega Coal Mine, West Virginia (USA)

Material Performance Gaps for Carbon Dioxide Transport Pipelines

Water and the production of gas from the Marcellus Shale

Structural characterization of Ni-substituted hexaaluminate catalysts using EXAFS, XANES, XPS, XRD AND TPR

Catalytic partial oxidation of CH4 over Ni-substituted barium hexaaluminate catalysts

Determination of reaction constants for SOFC cathodes by electrical conductivity relaxation

FT-IR Study of CO2 Adsorption in a Dynamic Copper(II) Benzoate-Pyrazine Host with Close CO2-CO2 Contacts in the Adsorbed State

Integration of fuel cell technology with Pt-CeO2/ODF catalysts to decompose CO2

Recent development of SOFC metallic interconnect

Resource assessment of the Marcellus Shale

Hydrogen production via chemical looping steam reforming in a fixed bed reactor

Synthesis and Evaluation of Porous Core-shell Structures

Oxidation Characteristics of Fe-18Cr-18Mn Stainless Steel Alloys

Environmental Degradation - Steam Oxidation

Modeling challenge: Translate research into commercial applications

The thermal regine and microbial ecology of two natural cold traps in Pennsylvania (USA)

Non-destructive spallation prediction of thermal barrier coatings by a load-based micro-indentation technique

Thermodynamic assessment of Pd-S based systems

High resolution simulations of coal jets in a gasifier

Impact and mechanism of interaction of benzene, napthalene and mercury doped syngas fuel on Ni-based SOFC's --- Part One: Experimental data analysis

Solid oxide fuel cells in advanced coal-fueled power systems

CFD simulation of entrained-flow coal gasification: Coal particle density/size fraction effects

Synopsis of historic and current characterization of the Marcellus Shale in the Appalachian Basin

A flexible capacitive sensor design for in-situ inspection of plastic natural gas pipelines. PREVIOUSLY TITLED: A flexible capacitive sensor design for in-situ polyethylenem pipeline inspection

Ductility of Cr-V Alloys

Creep Properties of Die Cast Zinc Alloys

Thermodynamic Assessment of V-Rare Earth Systems

Thermodynamic Assessment of MO-CE and MO-Y Systems

Thermodynamic Modeling of Pd-S System Supported by First Principles Calculations

Interactions of Refractory materials with Molten Gasifier Slags

Performance of Amine-Multilayered Solid Sorbents for CO2 Removal: Effect of Fabrication Variables
Innovative Nano-Layered Solid Sorbents for CO2 Capture
Surface Contaminant induced Corrosion of Pd Alloy Membrane during H2S Exposure
Catalytic Conversion of CO2 into Useful Carbonate Products over Metallic Nanoparticles Supported on Metal Organic Frameworks
MFIX-DEM simulation of change of volumetric flow in reacting fluidized beds
Thick high-purity low-density APS thermal barrier coatings
Rapid assessment of soil quality in oil remediation landfarms in Pennsylvania
Capacitive deionization powered by microbial fuel cells: Feasibility study of self-sustained desalination of produced water
Calibration method for direct GC-ICP/MS analysis of gas phase samples
Fundamentals of liquid tin anode solid oxide fuel cell (LTA-SOFC) operation
Enabling next generation options for CCS
Approaching zero
Chemical-looping combustion of coal with metal oxide oxygen carriers
Gasification technology to produce synthesis gas (2010) 1-28
Syngas Utilization (2010) 193-221
Role of pH IN CO2 Sequestration in Coal Seams
Regenerable multi-functional sorbent development for sulfur and chloride removal from coal-derived synthesis gas
MicroCT scanning
Nanowire scaffold for cathode of solid oxide fuel cell
Biomass for energy and fuels
Measuring the voidage of a CFB through image analysis
Performance and kinetics of a solid amine sorbent for carbon dioxide removal
Equilibrium and adsorption kinetics of carbon dioxide by solid supported amine sorbent
An implicit continuum mechanics approach to heat conduction in granular materials
Electrochemical characteristics of SDC infiltrated LSM cathodes with varied thickness for Yttria-stabilized zirconia electrolytes
CO2 Capture Properties of M-C-O-H (M=Li, Na, K) Systems: A combined Density Functional Theory and Lattice Phonon Dynamics Study
CO2 Capture Properties of Alkaline Earth Metal Oxides and Hydroxides: a Combined Density Functional Theory and Lattice Phonon Dynamics Study
Post-Yield, Room-Temperature, Transient and Steady-Slate Tensile Properties of Three Stainless Steel Alloy
Task 1: Steam Oxidation

TStream Oxidation of Chromia Evaporation in Ultra-Supercritical Steam Boilers and Turbines
Materials Performance in USC Steam
Abrasive Wear Properties of Nickel and Manganese Stainless Steels
Sodium Iron Fluorophosphate Energy Storage Materials: Synthesis and Characterization of Nanoscale Heterostructures
Fluidization modeling challenge

Do we need sub-grid scale corrections for both continuum and discrete gas-particles flow models?

Method for Detection of Trace Metal and Metalloid Contaminants in Coal-Generated Fuel Gas Using Gas Chromatography/Ion Trap Mass Spectrometry

Evaluation of reaction mechnism of coal-metal oxide interactions in chemical-looping combustion

The development of a non-destructive multiple partial unloading micro-indentation technique for thermal barrier coating spallation prediction

Heat transfer and Couette flow of a chemically-reacting non-linear fluid

Direct coal solid oxide fuel cells with liquid tin anodes

Compostie cathode infiltrated with pyrochlore/perovskite materials

SOFC anode interaction with trace coal syngas

Impact of fuel contaminants on performance in coal-based SOFCs

Characterization of a turbulent dilute hydrogen diffusion flame using Spontaneous Raman Scattering, OH-PLIF and large eddy simulation

High surface area, mesoporous (La,Sr)MnO3 for solid oxide fuel cell cathodes

High surface area, mesoporous (La,Sa)MnO3 for solid oxide fuel cell cathodes

Integrating Desulfurization with CO2-Capture in Chemical-Looping Combusion

Highly stable, mesoporouse mixed lanthanum-cerium oxides with tailored structure and reducibility

Graphene versus Carbon Nanotubes for Chemical Sensor and Fuel Cell Applications

Carbon Nanotube for the storage and controlled release of chemicals

CO2-philic oligomers as novel solvents for CO2 absorption

Multimode metal-lined capillaries for Raman collection and sensing

Advancing the supercapacitor materials and technology frontier for improving power quality

Mineralogial Associations of Mercury in FGD

Utilization of municipal wastewater in thermoelectric power production for freshwater minimization. Previous title: Treated municipal wastewater for cooling in thermoelectric power production

A finite element study of thermal relaxation of residual stress in laser shock peened IN718

Spatial relationships between faults and spring localities in the Valley and Ridge Province

CO2 flux from coal mine drainage, Allegheny County, PA

The US Patent 7,776,780, "Catalysts for Oxidation of Mercury in Flue Gas"

An Electron Microscopy Investigation of the Transient Stage Oxidation products in an Fe-22Cr Alloy with Ce and La Additions exposed to Dry Air at 800 Degrees C"

Unconventional: The development of the Marcellus Shale natural gas resource

Experimental and numerical observations of hydrate reformation during depressurization in a core-scale reactor

X-ray CT observations of methane hydrate distribution from prolonged and repeated formation in natural and synthetic compacted sand samples

Methane hydrate induced permeability modification for multiphase flow in unsaturated porous media

Synthesis of Ni Nanorods with Porous Silica Coatings

Reactivity Differences of Nanocrystals and Continuous Films of a-Fe2O3 on Au(111) Studied with In Situ X-ray Photoelectron spectroscopy.

Effects of non-volatile impurities from mixed carbon feedstock used in gasification on gasifier material degradation

Anticipated benefits from employing hydraulic compression in carbon dioxide sequestration

Multi-objective optimization of cost, water use, and heat rate for retrofitting a CO2 capture process to an existing pulverized coal power plant

A modular framework for the analysis and optimization of power generation systems with CCS (THIS IS A DUPLICATE OF TPR-2876)

The hydrogen permeability of Pd4S

Lab scale and computational studies of chemical looping combustion for efficient carbon capture

Phase equilibria in synthetic coal-petcoke slags (SiO2-Al2O3-FeO-CaO-V2O3

Simulation of coal ash particle deposition experiments

Effect of palladium dispersion on the capture of toxic components from fuel gas by palladium-alumina

Characterization of Devonian shale formations in the Appalachian Basin

MFIX-DEM simulations of change of volumetric flow in fluidized beds due to chemical reactions

"Structure-Property Correlation in Iron Oxide Nanoparticle-Clay Hybrid Materials"

"Enchanced magnetic response of fluids using Self-Assembled Petal-Like Iron Oxide Particles"

"Physical and chemical characteristics of potential seal strata in regions considered for demonstrating geological saline C)2 sequestration Griffith, C.A, Dzombak, D.A., Lowry, G.V. 650 - Geosciences   Yes   Yes   Geological & Environmental Science Submitted Environmental Earth Science

"Influence of Frequency, Grade, Moisture and Temperature on Oil Shale Dielectric Properties and Electromagnetic Heating Processes Hakala, J.A., Stanchina, W., Soong, Y., Hedges, S.W. 650 - Geosciences   Yes   Geological & Environmental Science Fuel prepocessing Technology, April 2010

TPR-3216 "Physical and chemical characteristics of potential seal strata in regions considered for demonstrating geological saline C)2 sequestration

"Permeability Variations in an Upper Freeport Coal Core due to Changes in Effective Stress and Sorption,"

Comparison of estimated and directly measured dissolved CO2 in natural and mining-impacted waters

Coal tar wastewater treatment and electricity production using a membrane-less tubular microbial fuel cell

Simulations of Variable Bottomhole Pressure Regimes to Improve Production from the Double-Unit Mount Elbert, Milne Point Unit, North slope Alaska Hydrate Deposit" Myshakin, E.; Anderson, B.J.; Rose, K.; Boswell, R. 605 - Earth and Mineral Sciences No No Yes Yes   Geological & Environmental Science

TPR-3223 Materials Challenges to Achieve Sustainable Fossil Energy Systems Jain, V.; Morreale, B. 690 - Process Development Yes No No No MS&T Conference, Houston, TX, Oct. 17-21, 2010 10/17/2010 Materials Science

TPR-3222 Iron-Doped Nickel Catalysts as Anode Materials for an Electrochemical Air Separation Device Landon, J.; Kitchin, J. 610 - Separations Fuels Processing Yes No No No AIChE Annual Conference, Salt Lake City, UT, Nov 7-12, 2010 11/07/2010 Energy System Dynamics

TPR-3221 "Two-Phase Flow in Porous Media: Predicting Its Dependence on Capillary Number and Viscosity Ratio

Operation of a solid oxide fuel cell on reformed biodiesel

Tracking solutes and water from subsurface drip irrigation application of coalbed methane produced waters, Powder River Basin, Wyoming

A CALPHAD Study on the Thermodynamic Stability of Calcium-, Zinc-, and Yttrium-Doped Magnesium in Aqueous Environments

Control of electrode activity of cthodic functional layer composed of SDC-LSCF through infiltration

Single-probe, fiber optic system for whole heart intracellular calcium transient measurement

"Atmospheric Tracer Monitoring and Surface Plume Development at the ZERT Pilot Test in Bozeman, Montana, USA"

Secondary organic aerosol formation from high-NOx photo-oxidation of low volatility precursor: n-alkanes

"Effects of nanoparticles on nanofluid droplet evaporation"

"Effects of multi-component diffusion and heat release on laminar diffusion flame liftoff"

"A shallow subsurface controlled release facility in Bozeman, Montana, USA, for testing near surface CO2 detection techniques and transport models"

"Characterization of cement from a well at Teapot Dome Oil Field: Implications for geological sequestration"

"Viscosity and thermal conductivity of nanofluids containing multi-walled carbon nanotubes stabilized by chitosan Tran, P.X., Massoudi, M., Chen, R.H. 640 - Environmental Science   Yes Yes   International Journal of Thermal Sciences Geological & Environmental Science   1/1/2011

Effect of Dispersion on the Capture of Toxic Elements from Fuel Gas by Palladium-Alumina Sorbents

Real Time Studies of Palladium Sorbents for the Removal of Trace Contaminants from Coal-Derived Fuel Gas

"H2S-CO2 Reaction with Hydrated Class H Well Cement under Geologic Sequestration Conditions"

Atmospheric monitoring of a perfluorocarbon tracer at the ZERT Center 2009 experiment in Bozeman, Montana, USA

"Kinetic analysis of cation exchange in birnessite using time-resolved synchrotron X-ray diffraction"

"Bayesian hierarchical models for soil CO2 flux and leak detection at geologic sequestration sites"

"Dynamic alteration along a fractured cement/cement interface: Implications for long term leakage risk along a well with an annulus defect"

"Surface tension of evaporating nanofluid droplets"

"A Complete Green Synthesis of Gold Nanoparticles using Laser Ablation in Liquid Technique"

"Synthesis of cation-exchanged laponite suspensions by laser ablation of microsized-metal particles in liquid"

Real Times Studies of Pd/Al2O3 Sorbents for the Removal of Gaseous Metal Contaminants from Coal Derived Fuel Gas

"Surface structure changes of Sewickly coal under the influence of supercritical CO2"

TPR-3249 "Kinetic analysis of cation exchange in birnessite using time-resolved synchrotron X-ray diffraction" Lopano, C.L., Heaney, P.J., Bandstra, J.Z., Post, J.E., Brantley, S.L. 640 - Environmental Science   Yes Yes   Submitted to Geochimica et Cosmochimica Acta Geological & Environmental Science

TPR-3248 Atmospheric monitoring of a perfluorocarbon tracer at the ZERT Center 2009 experiment in Bozemann, Montana, USA Pekney, N., Wells, A., Diehl, J. R., McNeil, M., Lesko, N., Armstrong, J. 640 - Environmental Science   Yes Yes   Geological & Environmental Science

TPR-3247 "H2S-CO2 Reaction with Hydrated Class H Well Cement under Geologic Sequestration Conditions" Kutchko, B., Strazisar, B., Hawthorne, S. Lopano, C., Miller, D., Hakala, J. Guthrie, G. 650 - Geosciences   Yes Yes American Geophysical Union, Fall Meeting 2009 Environmental Science Technology Geological & Environmental Science (Rejected after 6 month delay) abstract# U41A-0010

TPR-3246 Performance of hydraulically fractured wells in low permeability formation Belyadi, A.; Aminian, K.; Ameri, S.; Lightfoot Boston, A. 605 - Earth and Mineral Sciences Yes Yes Yes SPE Eastern Regional Meeting, Morgantown, WV, October 12-14, 2010 10/12/2010 Geological & Environmental Science

TPR-3245 Real Time Studies of Palladium Sorbents for the Removal of Trace Contaminants from Coal-Derived Fuel Gas Rupp, E., Granite, E., Stanko, D., 640 - Environmental Science   Yes Yes
  Environmental Science & Technology, August 3, 2010 Geological & Environmental Science

TPR-3244 Effect of Dispersion on the Capture of Toxic Elements from Fuel Gas by Palladium-Alumina Sorbents Baltrus, J.P., Granite, E.J., Rupp, E.C., Stanko, D.C., Howard, B., Pennline, H.W 640 - Environmental Science   Yes Yes   Fuel (2011) Geological & Environmental Science Submitted to Fuel, September 2010 1/21/2011

TPR-3243 "Viscosity and thermal conductivity of nanofluids containing multi-walled carbon nanotubes stabilized by chitosan

"H2S-CO2 Reaction with Hydrated Class H Well Cement: Implications for Acid Gas Injection and Co-Sequestration"

Completed comparison of Gaussian plume model results to experimental data from ZERT 2008 experimetns

Oxide-based reforming catalyst evaluation and development

Alternative reforming concepts: RF-enhanced catalysis and low-temperature plasma

Catalytic partial oxidation of a diesel surrogate fuel using an RU-substituted pyrochlore

Analysis of model parameters affecting the pressure profile in a circulating fluidized bed

High-methane molten carbonate gasifier: SECA 2010 end of year report

Chemical Sensing with Polyaniline Coated Single-Walled Carbon Nanotubes

Stochastic simulation of pulverized coal (PC) processes

A comparative study of the Mississippian Barnett Shale, Fort Worth Basin and the Devonian Marcellus Shale, Appalachian Basin

Investigation of Methanol Synthesis from Carbon Dioxide Hydrogenation over Multicomponent Copper based Catalysts

Copper Thin-Film Dissolution/Precipitation Kinectics in Organic HF Containing

Corrosion Performance of High Strength Steels for Drilling HPHT Oil and Gas Wells

The Development of Phosphates Containing Cr203
Thermodynamic Studies of Coal Slags for Gasification
GPU simulations for risk assessment in CO2 geologic sequestration

CO2 attraction by specifically adsorbed anions and subsequent accelerated electrochemical reduction

Role of lattice oxygen in the partial oxidation of methane over Rj/zirconia-doped ceria. Isotopic studies
Optimization of IGCC processes with reduced order CFD models

Analysis of Oxygen Separation from Air over Ni-Transition Metal Complexes, an In-Situ Infrared Study"
Miller, D.D.; Siriwardane, R. 610 - Separations Fuels Processing No No Yes Yes   Journal of Physical
Chemistry A Energy System Dynamics

TPR-3326 Optimization of IGCC processes with reduced order CFD models Lang, Y.; Zitney, S.; Biegler
L. 670 - Computational Science   Yes Yes   Computers and Chemical Engineering Computational & Bas
Science

TPR-3325 Role of lattice oxygen in the partial oxidation of methane over Rj/zirconia-doped ceria.
Isotopic studies Salazar, M.; Berry, D.; Cugini, A. 620 - Energy Systems Dynamics   Yes Yes
  International Journal of Hydrogen Energy, 35 (2010) 1998-2003 Energy System Dynamics

TPR-3324 CO2 attraction by specifically adsorbed anions and subsequent accelerated electrochemica
reduction Ogura, K.; Ferrell, J. (III); Cugini, A.; Smotkin, E.; Salazar, M. 620 - Energy Systems Dynamics
No No Yes Yes   Electrochimica Acta (2010) (Article in press) Energy System Dynamics

TPR-3323 Segregation of impurities at y' (L12)/y(fcc) interfaces in a Ni-based superalloy Tafen, D.;
Gao, M. 690 - Process Development Yes No No No APS March Meeting, Dallas, TX, March 21-25, 2011
03/21/2011 Materials Science

Interaction of CO with Oxygen Adatoms on TiO2(110)

Effect of additives on decomposition carbonate: pre-combustion CO2 capture sorbent regeneration

New title: X-ray computed-tomography imaging of gas migration in water-saturated sediments: From
capillary invasion to conduit opening. FORMER TITLE: Simulations of gas migration in water-saturated
sand and silt sediment

Surface properties and crystal morphology of La2Zr207: A theoretical study

CO2 photoreduction in the liquid phase over Pd-supported on TiO2 nanotube and bismuth titanate
photocatalysts

CYclability study of silicon-carbon composite anodes for lithium-ion batteries using electrochemical
impedance spectroscopy

Development of a Test System to Examine the Mechanics of High Pressure/Temperature Drilling

In Situ Observation of Water Dissociation with Lattice Incorporation at FeO Particle Edges Using Scanning Tunneling Microscopy and X-ray Photoelectron spectroscopy

Characterization of a Solid Oxide Fuel Cell Gas Turbine Hybrid System Based on a Factorial Design of Experiments Using Hardware Simulation

Control valve trajectories for SOFC hybrid system startup

Response surfaces for key controlled variables in the HyPer system

A mixture theory formulation for hydraulic or pneumatic transport of solid particles

Selective adsorption of CO_2 from light gas mixtures using a structurally dynamic porous coordination material

Identifying slope failure deposits from a potentially mixed magnetic susceptibility signal in gas hydrat bearing regions

On the variation of superfical gas velocity in deep gas-solid fluidized beds

On the representation of turbulent stresses for computing blood damage

Electrochemical System to Study Corosion of Metals in Supercritical CO_2 Fluids

Tunable poly(hydroxyl urethane) from CO_2-based intermediates using thiol-ene chemistry

Evaluation of Fuel Cell Operation and Degradation

A CFD study of gas-solids jet in a CFB riser flow

Theoretical Evaluation Using Irreversible Thermodynamics of the Feasibility of Separating N2 and CO2

Preliminary Assessment of the Microbiology of Marcellus Shale Fracture and Flowback Waters

Interfacial failure via encapsulation of external particulates in an outward-trowing thermal oxide

High Temperature Langasite SAW Oxygen Sensor

Organization
660 - Chemistry Surfaces Science
610 - Separations Fuels Processing
650 - Geosciences

670 - Computational Science
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620 - Energy Systems Dynamics

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620 - Energy Systems Dynamics

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670 - Computational Science

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670 - Computational Science

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670 - Computational Science

680 - Materials Performance

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610 - Separations Fuels Processing; 640 - Environmental Science

690 - Process Development
605 - Earth and Mineral Sciences

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660 - Chemistry Surfaces Science

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680 - Materials Performance

620 - Energy Systems Dynamics

670 - Computational Science

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610 - Separations Fuels Processing

640 - Environmental Science

690 - Process Development

620 - Energy Systems Dynamics

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680 - Materials Performance
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